

2/2 026

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0108794

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON THE EXAMPLE OF ANALYSIS OF  
RENDERING URGENT AID TO 84 INJURED PATIENTS THE EFFICACY OF REANIMATION  
MEASURES IN SHOCK, STAGE II-III, AND TERMINAL CONDITIONS HAS BEEN  
DEMONSTRATED. FACILITY: LENINGRADSKOY STANTSII SKOROY  
MEDITSINSKOY POMOSHCHI.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--TOXICOLOGICAL AND ANTISEROTONIN PROPERTIES OF SOME GUANIDINE  
DERIVATIVES -U-  
AUTHOR--(03)-LUBAS, A.A., STANKYAVICHYUS, A.P., SHADURSKIY, K.S.  
COUNTRY OF INFO--USSR  
SOURCE--FARMAKOLOGIYA I TOKSICOLOGIYA, 1970, VOL 33, NR 1, PP 17-21  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--GUANIDINE, AMINE DERIVATIVE, BENZENE DERIVATIVE, ORGANIC  
SULFUR COMPOUND, SEROTONIN, INHIBITION, NERVOUS SYSTEM DRUG, TOXICOLOGY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3003/1423 STEP NO--UR/0390/70/033/001/0017/0021  
CIRC ACCESSION NO--AP0130366  
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0130366

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS GRAPHIC INFORMATION. THE TOXICITY OF THE INVESTIGATED COMPOUNDS INCREASES WHEN ONE AMINO GROUP FROM GUANIDINE IS REPLACED BY A PHENYL, METHYLTHIO, OR BENZYL GROUP. IT IS DECREASED WHEN AN AMINO GROUP IS INCORPORATED INTO THE HETEROCYCLIC SYSTEM. IN MICE THE INTOXICATION PASSES THROUGH A BRIEF EXCITATION STAGE, FOLLOWED BY DEPRESSION. COMPOUNDS WITH METHYLTHIO GROUPS PRODUCE NO DEPRESSION. COMPOUNDS WITH TWO OR THREE BENZYL GROUPS AT THE GUANIDINE NITROGEN SHOW ANTISEROTONIN ACTIVITY. FACILITY: KAUNASSKIY MEDITSINSKIY INSTITUT.

UNCLASSIFIED

USSR

UDC 615.31:547.495.97.099+615.31:  
547.495.97.015.4:612.018:547.757

LUBAS, A. A., STANKYAVICHYUS, A. P., and SHADURSKIY, K. S., Central  
Scientific Research Laboratory, Kaunas Medical Institute, Kaunas,  
Ministry of Health Lithuanian SSR

"Toxicological and Antiserotonin Properties of Some Guanidine  
Derivatives"

Moscow, Farmakologiya i Toksikologiya, Vol 33, No 1, Jan-Feb 70,  
pp 17-21

Abstract: The toxicological properties and antiserotonin activity  
of 11 guanidine derivatives with a structure based on benzylamine,  
morpholine, or piperazine (table) were studied. The toxicity was  
determined on mice and the antiserotonin activity in experiments on  
rats and mice. The toxicity increased on replacement of one of the  
NH<sub>2</sub> groups with Ph, MeS, or CH<sub>2</sub> Ph and decreased considerably on  
inclusion of this group into a morpholine or piperazine ring.  
Intoxication in mice was manifested by a brief excitation phase  
that changed into depression. Upon the action of a compound with  
an MeS group, the depression phase was absent. An antiserotonin

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LUBAS, A. A., et al, Farmakologiya i Toksikologiya, Vol 33, No 1, Jan-Feb 70, pp 17-21

activity was exhibited by the compounds  $\text{PhCH}_2\text{NHC}(=\text{NH})\text{NHCH}_2\text{Ph} \cdot \text{HCl}$  (I),  $\text{PhCH}_2\text{NHC}(=\text{NCH}_2\text{Ph})\text{NHCH}_2\text{Ph} \cdot 3\text{HCl}$  (II), and  $p\text{-ClC}_6\text{H}_4\text{CH}_2\text{NHC}(=\text{NH})\text{NHCH}_2\text{Ph} \cdot \text{HCl}$  (III). I, II, and III in a concentration of  $1 \times 10^{-5}$  g/ml prevented completely spasms of a section of the large intestine of rats produced by serotonin and inhibited development of diarrhea induced by 5-hydroxytryptophan in mice when administered in doses of 14.1, 5, and 16 mg/kg for I, II, and III respectively. These doses were effective in preventing diarrhea in 75, 80, and 50% of cases, respectively, after 5-hydroxytryptophan in a dose of 50 mg/kg had been injected intraperitoneally to the mice.

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1/2 020 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--INITIATION OF THE DECARBOXYLATION OF MERCURIC ENANTHATE, CAPRYLATE,  
AND PELARGONATE. SYNTHESIS OF C SUB6 THROUGH C SUB8 N, ALKYL MERCURY  
AUTHOR--(04)-OLDEKOP, YU.A., MAYER, N.A., ERDMAN, A.A., STANOVAYA, S.S.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(2) 305-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, PHYSICS  
TOPIC TAGS--DECARBOXYLATION, ORGANOMERCURY COMPOUND, ORGANIC PEROXIDE, UV  
LIGHT, CHAIN REACTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1985/1407 STEP NO--UR/0079/70/040/002/0305/0308  
CIRC ACCESSION NO--AP0101497  
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0101497

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING (RC O SUB2) SUB2 HG (ENANTHATE, CAPRYLATE OR PELARGONATE) WITH ENANTHOYL PEROXIDE, BZ SUB2 O SUB2, CAPRYLOYL PEROXIDE OR PELARGONYL PEROXIDE 1-10 HR AT 80DEGREES OR EXPOSURE OF THESE SYSTEMS TO UV LIGHT RESULTED IN DECARBOXYLATION OF THE SALTS TO FORM THE CORRESPONDING ALKYL MERCURY SALTS. IN THIS MANNER 40 TO 93PERCENT YIELDS OF ALKYL MERCURY SALTS WERE OBTAINED (HEXYL, HEPTYL AND OCTYL) ALONG WITH LESSER YIELDS OF SALTS OF PHENYL MERCURY, SMALLER AMTS. MERCUROSUS SALTS AND MERCURIC SALTS, MINOR AMTS. HG AND APPROPRIATE AMTS. CO SUB2. THE DECARBOXYLATION APPEARS TO BE A CHAIN REACTION. REFLUXING THE HG DIACRYLATE IN C SUB6 H SUB6 6 HR GAVE 38 TO 56PERCENT PHENYL MERCURY SALT, FREE OF ALKYL MERCURY SALTS. CONVERTED TO THE HALIDES THESE WERE ISOLATED AS: PHHGCL, M. 250DEGREES, PHHGBR, M. 272 TO 50RGREES. SIMILARLY WERE ISOLATED C SUB6 H SUB13 HGCL, M. 124DEGREES; BROMIDE, M. 121DEGREES; C SUB7 H SUB15 HGBR, M. 114DEGREES, AND C SUB8 H SUB17 HGCL, M. 115DEGREES.

UNCLASSIFIED

USSR

UDC 621.785.1:62-412.669.15

BRUK, YU. G., STANOVY, V. I., GUTOVSKIY, I. B., and PUGOVKIN, A. U.

"Investigation of Heating Steel NM3B (OKh18N5G12AB) Ingots"

Moscow, Kuznechno-Shtampovoye Proizvodstvo, No 10, Oct 73, pp 39-40

Abstract: Steel NM3B can be greatly strengthened at 550-800° C and forged at 950-1250° C, but its deformability at higher temperatures is sharply diminished, and tests were conducted to determine the soak times and temperatures and heating rates to produce the highest forging temperature and best metal structure. Tests were made by heating at an arbitrary rate, soaking for a period, heating to a higher temperature at an arbitrary rate and soaking. The short coming of this method was that temperatures measured were furnace temperatures and not ingot temperature. Therefore, holes were drilled in test ingots for placement of thermocouples. Tests showed that at low furnace temperatures (650° C), the differences in furnace and ingot temperatures is high (200-350° C over a 7-hour period). At a furnace temperature of 1250° C this difference is only 60-80° C. When the temperature of the furnace was increased from 650-900° C the ingot temperature rise was much faster than at 650° C. Tests were also conducted for the fastest possible heating rates (400-500° C/hr) which showed that during

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BRUK, YU. G., et al., Kuznechno-Shtampovochnoye Proizvodstvo, No 10, Oc 73, pp 39-40

certain heating periods the temperature drop along ingot length was  $650^{\circ}\text{C}$ , which promoted development of numerous internal defects. The final conclusions for the heating of steel NN3B were to soak ingots at  $650^{\circ}\text{C}$  for 4.5 hours,  $900^{\circ}\text{C}$  for eight hours with final heating to a furnace temperature of  $1300^{\circ}\text{C}$  (ingot temperatures --  $1220-1240^{\circ}\text{C}$ ). This procedure increased the number of forging operations per heating, reduced the number of heatings, and reduced the number of cracks and scrap ingots by four times. Three figures, one bibliographic reference.

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USSR

UDC 389:531.5.081

STANYUKOVICH, K. P., and KOLOSNIYSYN, N. I.

"Gravitation and Metrology"

Khar'kov, Ukr. resp. nauch.-tekhn. konf., posvyashch. 50-letiyu metrol. sluzhby USSR, 1972 -- sb. (Ukrainian Republic Scientific and Technological Conference Honoring the 50th Anniversary of the Ukrainian SSR's Metrological Service, 1972 -- Collection of Works), 1972, pp 14-16 (from Referativnyy Zhurnal -- Metrologiya i Izmeritel'naya Tekhnika, No 2, 1973, Abstract No 2.32.58)

Translation: The requirements for standards of physical values (such as time and frequency) and the conditions for their reproduction should contain some indication of the system of reference in which the standards are defined. Any (noninertial) reference system has an effect on any physical value, including physical standards, that is basically uneliminatable. This effect is caused by the gravitational and relativistic effects included in the modern theory of gravitation. For example, because of the Earth's daily rotation in the Sun's gravitational field, all terrestrial clocks should be subjected to daily variations, the level of which depends on their geographical location and can reach approximately  $10^{-12}$  for clocks located at opposite points on the Earth's equator. In addition to the daily variations, there are also annual ones, at the level of  $5 \cdot 10^{-10}$ , which are identical for all time and frequency standards

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STANYUKOVICH, K. P., and KOLOSNIITSYN, N. I., Ukr. resp. nauch.-tekhn. konf., posvyashch. 50-letiyu metrol. sluzhby USSR, 1972 -- sb, pp 14-16

(including atomic), regardless of where they are located on the Earth's surface. Clocks in an airplane that is flying either east or west at a uniform rate of speed will run either slower or faster, respectively, with respect to stationary clocks. The properties of the fundamental physical constant -- the gravitational constant  $G$  -- are determined by the properties of the gravitational interaction of bodies and the relationship between a body's gravitational and inertial masses. Theory allows the gravitational mass to be divided into "active" and "passive" masses, which leads to the concepts of "active" and "passive" gravitational constants, respectively. The experimental material that is available makes it possible to estimate the equality of the active gravitational constant, with an accuracy of  $1:10^5$ , and the passive gravitational constant, with an accuracy of  $1:10^{12}$ , for all substances. The possible difference between the propagation speed of gravitational interaction and the speed of light entails anisotropy of the gravitational constant. A comparison of the expected effect with data on surges shows that  $(\Delta G/G)_{\text{anis.}} < 10^{-9}$ , while the speeds at which light and gravity are propagated differ by less than 1.5 percent. A careful investigation of all aspects of gravitational interaction

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USSR

STANYUKOVICH, K. P., and KOLOSNITSYN, N. I., Ukr. resp. nauch.-tekhn. konf., posvyashch. 50-letiyu metrol. sluzhby USSR, 1972, -- sb, pp 14-16

and the gravitational constant requires that special experiments be formulated. An analysis of the fundamental physical constants shows that, since the Universe is not stationary (its radius is constantly increasing), their values must change. A number of modern theories of gravitation also point to the inevitability of a change in the basic physical constants as time passes.

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1/2 018 UNCLASSIFIED PROCESSING DATE--11DEC70  
TITLE--THE INTERACTION OF ULTRA HIGH ENERGY COSMIC RAYS WITH PHOTONS AND  
NEUTRINOS IN THE UNIVERSE -U-  
AUTHOR-(G3)-KONSTANTINOV, B.P., KOCHAROV, G.E., STARBUNOV, I.N.  
COUNTRY OF INFO--USSR, HUNGARY  
SOURCE--INTERNATIONAL CONFERENCE ON COSMIC RAYS, 11TH, BUDAPEST, HUNGARY,  
AUGUST 25-SEPTEMBER 4, 1969, PROCEEDINGS. VOLUME 1 ORIGIN AND GALACTIC.  
DATE PUBLISHED-----70

SUBJECT AREAS--ATMOSPHERIC SCIENCES

TOPIC TAGS--COSMIC RAY, ENERGY SPECTRUM, PHOTON, NEUTRINO

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605060/P07 STEP NO--H0/2506/70/029/000/0527/0530

CIRC ACCESSION NO--AT0144420

UNCLASSIFIED

2/2 018

CIRC ACCESSION NO--ATC144420

UNCLASSIFIED

PROCESSING DATE--11DEC70

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE PROBLEM OF THE DISTORTION OF THE ENERGY SPECTRUM OF ULTRA HIGH ENERGY COSMIC RAYS DUE TO THE ISOTROPIC BACKGROUND OF PHOTONS AND NEUTRINOS IS CONSIDERED. IT IS

SHOWN THAT THE SHAPE OF THE ENERGY SPECTRUM OF COSMIC RAYS IN THE ULTRA HIGH ENERGY REGION MAY YIELD INFORMATION ON SOME IMPORTANT ASTROPHYSICAL AND NUCLEAR PARAMETERS.

FACILITY: AKADEMIYA NAUK SSSR, FIZIKO-TEKHNICHESKII INSTITUT, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC: 533.95:537.84

STARBUNOV, Yu. N., CHARIKOV, Yu. Ye.

"Plasma Temperature and X-Radiation Upon Injection of Electrons Accelerated in Solar Flares"

Leningrad, IV Leningr. mezhdunar. seminar "Yedinoobraziye uskoreniya chastits v razlich. masshtabakh kosmosa", 1972-sbornik (Fourth Leningrad International Seminar on the Uniformity of Particle Acceleration on Different Scales of the Universe, 1972--collection of works), 1972, pp 145-165, discussion pp 165-166 (from RZh-Fizika, No 6, Jun 73, abstract No 6G14 /resume/)

Translation: The time characteristics of temperature distribution are calculated in the one-dimensional problem for a plasma layer heated by the energy of nonthermal electrons from solar flares. It is shown that the plasma temperature may reach  $10^8$  degrees K. X-radiation fluxes for energy past 10 keV are calculated for a heated plasma.

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1/2 015  
UNCLASSIFIED  
TITLE--THERMONUCLEAR REACTIONS WITHIN THE SUN AND SOLAR NEUTRINOS -U-  
AUTHOR--KOCHAROV, G.YE., STARBUNOV, YU.N.  
COUNTRY OF INFO--USSR  
SOURCE--PISMA ZH. EKSP. TEOR. FIZ. 1970, 11(2) 132-5  
DATE PUBLISHED-----70  
SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS  
TOPIC TAGS--SUN, THERMONUCLEAR REACTION, NEUTRINO, MODEL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1987/0882  
CIRC ACCESSION NO--AP0104318  
STEP NO--UR/0386/70/011/002/0132/0135  
UNCLASSIFIED



015  
CIRC ACCESSION NO--AP0104318  
ABSTRACT/EXTRACT--(U) GP-0-  
AND YU. N. STARRUNOV (1969), IN REGIONS THAT ARE REMOTE FROM THE CENTER OF THE SUN, PRIME3 HE SHOULD BE PRESENT EVEN UP TO THE PRESENT TIME. IF THERE IS CIRCULATION IN THE INTERIOR OF THE SUN, PRIME3 HE SHOULD PASS FROM THESE REMOTE REGIONS INTO THE CENTER. THUS IN THE REGIONS WHERE THERMONUCLEAR REACTIONS TAKE PLACE, THE PRIME3 HE CONC. SHOULD BE HIGHER THAN IS USUALLY ASSUMED. THIS DECREASES THE FLUX OF THE HIGH ENERGY SOLAR NU. THE SUN SHOULD BURN 10 PRIME38 PRIME3 HE NUCLEI PER SEC TO KEEP UP THE PRESENT LIGHT OUTPUT. THE VELOCITY OF PRIME3 HE FLUX OF 10 PRIME NEGATIVE6 MINUS 10 PRIME NEGATIVE7 CM-SEC THAT IS REQUIRED IN THIS CASE SHOULD BE EASILY OBTAINED. A SOLAR MODEL IS DEVELOPED IN WHICH THE INTENSITY OF THE GENERATION OF THE SOLAR NU FROM THE REACTIONS: P PLUS P YIELDS D PLUS E PRIME POSITIVE PLUS NU (E SUBNU PRIMEMAX. EQUALS 0.42 MEV) AND P PLUS P PLUS E PRIME NEGATIVE YIELDS D PLUS NU (E SUBNU EQUALS 1.44 MEV) IS CONSIDERED. THE NU FLUX OBSO. ON THE SURFACE OF THE EARTH IS A FACTOR OF 60 BELOW THE THEORETICAL LOWER LIMIT OF THE VALUE TO BE EXPECTED FROM THE RATE OF THE REACTION, PRIME37 CL(NU, E PRIME NEGATIVE) PRIME37 AR. A NEW POSSIBILITY OF GENERATION OF ENERGY AND NU IN THE INTERIOR OF THE SUN IS SUGGESTED.

UNCLASSIFIED

PROCESSING DATE--11SEP70

UNCLASSIFIED

USSR

UDC 669.788+669.14.018-16

STARCHAK, V. G., Candidate of Technical Sciences, and KUSLITSKIY, A. B.,  
Candidate of Technical Sciences, L'vov Polytechnic Institute and Institute of  
Physics and Mechanics of the Academy of Sciences, USSR

"Stability of Steel 20 Against Hydrogen Introduction"

Moscow, Teploenergetika, No 2, Feb 71, pp 56-57

Abstract: The effect of the extent of pollution by nonmetallic inclusions on the stability against hydrogen introduction of standard, acid open hearth, and vacuum-arc-remelted steel 20 was experimentally investigated on flat steel specimens by a previously described method (Yu. A. Klyachko, et al, Savodskaya Laboratoriya, No 1, 1970). Tabulated investigation results show that the vacuum-arc-remelted steel 20 possesses the highest mechanical properties. A decrease in pollution by nonmetallic inclusions was found to be an effective means for a considerable suppression of hydrogen brittleness of steel. One table, three bibliographic references,

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ACC. NO.

AP0049521

Abstracting Service:  
CHEMICAL ABST. 5-70

Ref. Code

4R0032

102891v Studying the occlusion of hydrogen by steel under stress. Kivachko, Yu. A.; Barg, L. G.; Starchak, V. G.; Kuslitskii, A. B. (Lvov. Politekh. Inst., Lvov, USSR). *Zurad. Lab.* 1970, 36(1), 40-2 (Russ). H, when occluded by steel, reduces ductility while increasing brittleness and likelihood of corrosion cracking. Previous expts. were carried out on the H occlusion by unstressed steel and the quant. detn. of the vol. of occluded H. The present investigation used the same techniques except that the sample studied was placed in a special fixture which stressed it over radii of 60, 120 and 240 mm. The length of sample exposed to cathodic polarization in 10% H<sub>2</sub>SO<sub>4</sub> at a c.d. of 0.1 A/cm<sup>2</sup> was 20 cm with the ends rendered non-conductive by a lacquer or paraffin. H content was detd. by collecting the gas evolved when the sample was anodically treated in an electrolyte comprising NaK tartrate and NaCl. Stressed samples always occluded more H than the undistorted samples, while other factors such as steel compn., production techniques, heat treatment, annealing temp., and impurities altered the abs. vol. of occluded H.

Herman Koretzky

REEL/FRAME  
19801384

USSR

UDC 621.771:665.521.5

STARHENKO, D. I., Doctor of Technical Sciences, SLYUSAREV, A. T., Candidate of Chemical Sciences, and KAPLANOV, V. I., Candidate of Technical Sciences

"Efficiency of TPS-K Lubricant in High-Speed Cold-Rolling of Steel Sheets"

Dnepropetrovsk, Metallurgicheskaya i Gornorudnaya Promyshlennost', No 5, Sep-Oct 70, pp 21-23

Abstract: Results are presented from tests conducted on the new TPS-K lubricant, which was developed jointly by the Zhdanov Metallurgical Institute and the Bryansk Pilot Petroleum and Oil Plant. The lubricant is being used successfully in thin sheet rolling of low-carbon and transformer steels, in wire and tube drawing from nonferrous metals, and in the production of bent profiles. Tests were conducted in the rolling of dry strips by dry rollers, and also in using the TPS-K lubricant with 5, 10, 20, 30, 40, 50, 75, and 100% concentration of surface-active substances. Similar tests were conducted for purposes of comparison using industrial 20 oil and palm and castor oils.

USSR

UDC 621.771.24

STARCHENKO, D. I., KAPLANOV, V. I., and SHAPKO, V. M., Zhdanov

"Study of Influence of Conditions of High-Speed Cold Rolling  
on the Mechanical Properties of Steel"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan 71, pp 96-100

Abstract: Studies were performed on high-speed cold rolling of steel strips on a type-300 laboratory mill with a roller speed of from 4.5 to 30 m/sec, using various well-known lubricants: type PKS-1, castor oil, and distilled water, as well as three new technological lubricants developed at the Zhdanov Metallurgical Institute. The new lubricants consist of: 10% water emulsion of the product of condensation of  $C_{17}-C_{20}$  synthetic fatty acids with triethanolamine, 30% type 20 industrial oil (TPS-17M30); 30% solution of the product of condensation of still residue synthetic fatty acids with triethanolamine in type 20

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STARCHENKO, D. I., et al., Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan 71, pp 96-100

industrial oil (type TPS-K30); and a 50% solution of still residue synthetic fatty acid condensate with triethanolamine in type 20 industrial oil (TPS-K50). The hardness of thin-sheet low-alloy steel under high-speed rolling conditions can be considered to depend on the degree of total deformation, and to be independent of the type of technological lubricant, speed of rollers, and number of passes. Based on the experimental data, formulas are produced for the functional dependence of hardness, yield point, and ultimate strength on degree of deformation, yield point, and ultimate strength on hardness, and also yield point on ultimate strength and ultimate strength on yield point of work-hardened low-alloy steel strip.

1/2 020  
UNCLASSIFIED  
TITLE--EXPERIMENT IN NITRIDING LARGE MACHINE PARTS -0-  
PROCESSING DATE--30OCT70  
AUTHOR--(02)--GORENKO, V.G., STARCHENKO, YU.P.  
COUNTRY OF INFO--USSR  
SOURCE--KIEV, TEKHNOLOGIYA I ORGANIZATSIYA PROIZVODSTVA, NO 1, 1970, PP  
47-49  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--NITRICATION, RUBBER, PLASTIC, MACHINE TOOL COMPONENT, METAL  
HEAT TREATMENT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FAME--1999/1314  
STEP NO--UR/0418/70/000/001/0047/0049  
CIRC ACCESSION NO--AP0123273  
UNCLASSIFIED

2/2 020

CIRC ACCESSION NO--AP0123273

ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT. THE AUTHORS GIVE REGIMES FOR  
NITRIDING LARGE MACHINE PARTS FOR REPROCESSING RUBBER AND PLASTICS.

UNCLASSIFIED



USSR

UDC 539.293.294.537

ORESHKIN, P. T., STARCHENKOV, B. K., ANDREYEVA, L. P.

"Concerning Migration Polarization in Dielectrics and Semiconductors"

Tomsk, Izvestiya Fizika, No 5, 1970, pp 13-16

Abstract: It is shown that in migration polarization the relaxation time is determined by the lifetime of the carriers in a fixed state, by the thickness of the layer through which the migration transpires, and by the drift velocity. For ion migration a formula is obtained as a generalization of the ion-relaxation polarization formula. Experimental data are presented with regard to the determination of ion mobility in  $Al_2O_3$  by the Ioffe method, and a comparison was made with the values of mobility that were determined by the author's method with the use of formulas for the relaxation time. The necessity was pointed out for examining migration polarization when analyzing the mechanism of excess noise and some cases of current fluctuations in semiconductors, relaxation dielectric losses, relaxation phenomena in active film elements, etc.

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UNCLASSIFIED  
PROCESSING DATE--04DEC70  
BACTERIODS OF LUPINUS LUTEUS MODULES -U-  
AUTHOR--(04)-MANORIK, A.V., STARCHENKOV, E.P., DATSENKO, Y.K., YAKOVLEVA,  
M.S.  
COUNTRY OF INFO--USSR  
SOURCE--ADPOV. AKAD. NAUK UKR. RSR, SER. B 1970, 32(2), 177-82  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--LEGUME CROP, PLANT PHYSIOLOGY, NITROGEN ISOTOPE, BACTERIA,  
CHEMICAL LABELLING, ADENOSINE TRIPHOSPHATE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3006/1220  
CIRC ACCESSION NO--AT0134894  
STEP NO--BU/0442/70/032/002/0177/0182  
UNCLASSIFIED

2/2 010

CIRC ACCESSION NO--AT0134894

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. APPLYING PRIME15 N TECHNIQUES, CRUDE ACELLULAR AND BIO GEL EXTS. OF BACTERIODS OF L. LUTEUS NODULES SHOWED A N FIXATION OF 244.4 MU G OF N PER MIN PER MG OF PROTEIN, PROVIDED THE REACTION MIXT. CONTAINS AN EXCESS OF AN ATP REGENERATING SYSTEM, MG PRIMEPOSITIVE POSITIVE, AND NA SUB2 S SUB2 O SUB4 IN THE PRESENCE OF POLYCAPROLACTAM (II). WHEN PHENOL COMPOS. ARE NOT ELIMINATED FROM EXTS. THE FIXING ABILITY DECREASES TO 27 MU G OF N PER MIN PER MG OF PROTEIN, AND STOPS ALTOGETHER WHEN I IS REVDED. THE POS. N FIXATION BY A CRUDE EXT. IN THE PRESENCE OF CREATINE (CR) AND CREATINE PHOSPHOKINASE MAY BE EXPLAINED BY THE REACTION OF ATP WITH CREATINE WITH THE FORMATION OF CREATINE PHOSPHATE (CRP) AND ADP. AS A RESULT, ADP WHICH IS AN INHIBITOR OF N FIXATION, IS NOT ACCUMULATED IN THE REACTION MIXT. WITH CR AND CRP IN THE REACTIONS MIXT., N FIXATION IS DOUBLED.

FACILITY: INST. FIZIOL. ROSLIN, KIEV, USSR.

UNCLASSIFIED

USSR

VASIL'YEV, YU. N., et al, Izvestiya Akademii nauk SSSR, Neorganicheskiye materialy, Vol 8, No 3, Mar 72, pp 451-453

load agree in form with the equation of the fatigue theory of wear. Use was made of the experimental data on friction and wear to calculate the fatigue constant as a function of temperature. It is suggested that the shape of this curve is determined by the adsorption of both water vapors and phosphoric anhydride vapors. ( 2 illustr., 5 biblio. ref ).

2/2

USSR

VASIL'YEV, YU. N. and STARSHENKOVA, N. V.

"Friction and Wear of the New Antifriction Graphite Ag-T in Open Air at Temperatures Up to 600°C"

Moscow, Izvestiya Akademii nauk SSSR, Neorganicheskiye materialy, Vol 8, No 3, Mar 72, pp 451-453

Abstract: A study has been made on the wear intensity and friction coefficient of the new antifriction graphite material Ag-T as a function of loading and temperature. The new material was prepared by impregnating graphite Ag-1500 with phosphorus compounds. The treatment is said to reduce the oxidation rate of graphite in air to a factor of twenty as well as to improve the friction characteristics at high temperatures. The testing temperatures in this study were 150-600°C and the loads --1.5-19 Kg/cm<sup>2</sup> at rates of 9 m/sec. It is shown that the experimentally derived relationships between the wear intensity of the Ag-T graphite and the applied

1/2

1/2 011 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--EFFECT OF IRRADIATION ON THE PRECIPITATION OF SLURRIES -U-

AUTHOR--(03)-KLASSEN, V.I., MALYSHEVA, N.G., STARCHICK, L.P.

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL. 1970, 43(11), 82-4

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--SLIME, SEDIMENTATION, MINERAL, BAUXITE, FLUORITE, IRRADIATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1986/0876

STEP NO--UR/0136/70/043/011/0092/0084

CIRC ACCESSION NO--AP0102837

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0102837

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SEDIMENTATION RATES OF GALENA, PYRITE, QUARTZ, CALCITE, ABLITE, FLUORITE, AND BAUXITE WERE STUDIED. THE SIZE OF THE MINERAL PARTICLES WAS SMALLER THAN OR EQUAL TO 10 MU. THE CHANGE IN THE SEDIMENTATION RATE WAS DETD. PHOTOMETRICALLY. THE SUSPENSION WAS IRRADIATED BY USING A SPECIALLY DEVISED APP. AS SOURCES, PRIME90 SR PLUS PRIME90 Y AND PRIME144 CE PLUS PRIME144 PR WERE USED. THE TIME OF IRRADN. OF THE SUSPENSION (I.E., THE DOSAGE) VARIED FROM 30 MIN TO 6 HR. THE OPTIMUM IRRADN. TIME WAS 1-1.5 HR. ON IRRADN., THE RATE OF COAGULATION OF THE SLURRIES INCREASES BY 2.5 TIMES FOR CALCITE, AND BY 1.5 TIMES FOR ALBITE. IN THE PRESENCE OF COAGULANTS, SUCH AS H SUB2 SO SUB4 AND POLYACRYLAMIDE, THE COAGULATING ACTION OF THE IRRADN. IS PRESERVED AND EVEN INCREASES. THE MECHANISM OF THE EFFECT OF IRRADN. ON THE SEDIMENTATION OF SLURRY PARTICLES CAN POSSIBLY BE EXPLAINED BY THE FACT THAT THE WATER MOLS., UNDER THE INFLUENCE OF IONIZING RADIATION, ECOMP. INTO FREE H, OH, AND HO SUB2 RADICALS. BY REACTING, THEY CAN FORM H SUB2, O SUB2, AND H SUB2 O SUB2, AND CAN EVEN RECOMBINE TO AGAIN FORM H SUB2 O; IN ALL CASES, THE PH OF THE WATER IS ALTERED. AN ESP. LARGE EFFECT ON THE COAGULATION PROCESS OF THE SLURRIES IS EXERTED BY THE H AND OH RADICALS PRESENT IN THE SUSPENSION AS A RESULT OF RADIOLYSIS OF WATER. THE TIME WHICH HAS PASSED AFTER THE IRRADN. OF THE WATER ALSO HAS A SIGNIFICANT EFFECT ON THE SEDIMENTATION OF THE SUSPENSION.

UNCLASSIFIED

USSR

UDC 622.7:621.039.8

KLASSEN, V. I., MALYSHEVA, N. G., and STARCHIK, L. P.

"Effect of Radioactive Radiation on the Process of Slurry Precipitation"

Moscow, Tsvetnyye Metally, No 1, Jan 70, pp 82-84

Abstract: In a study of the effect of radioactive radiation on the process of slurry precipitation, a special device was used for irradiating the suspension by means of an  $Sr^{90} + Y^{90}$  source. The optimum irradiation time was 1-1.5 hrs. A study was made of the rate of precipitation of galenite, pyrite, quartz, calcite, albite, fluorite, and bauxite. The size of the mineral particles was 10 microns. The rate of precipitation of the suspension was determined photometrically. It was established that the rate of slurry precipitation under the effect of radioactive irradiation was increased for calcite 2.5 times, albite 1.5 times, etc. The mechanism of the effect of irradiation on slurry precipitation is explained.

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1/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--DETERMINATION OF THE AMOUNTS OF ELEMENTS IN ORES AND PRODUCTS OF  
THEIR REPROCESSING BY EXCITATION OF METASTABLE STATES ACCORDING TO A  
AUTHOR--(021)-KODIRI, S., STARCHIK, L.P.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(2), 191-5

DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, EARTH SCIENCES AND  
OCEANOGRAPHY

TOPIC TAGS--ELECTRON ACCELERATOR, BREMSSTRAHLUNG, METASTABLE STATE, GAMMA  
IRRADIATION, RADIOACTIVITY MEASUREMENT, GAMMA SPECTROMETER, MINERAL  
FORMATION ANALYSIS, EXCITED NUCLEUS, ORE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1994/1229

STEP NO--UR/0032/70/036/002/0191/0195

CIRC ACCESSION NO--AP0115246

UNCLASSIFIED



2/2 021

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0115246

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WITH THE AID OF THE BREMSSTRAHLUNG OBTAINED FROM A 4.2 MEV ELECTRON LINEAR ACCELERATOR (AV. OUTPUT CURRENT OF 50MA) METASTABLE STATES OF THE FOLLOWING NUCLIDES WERE EXCITED: PRIME77 SE, PRIME87 SR, PRIME89 Y, PRIME103 RH, PRIME107 AG, PRIME109 AG, PRIME111 CD, PRIME 113 IN, PRIME115 IN, PRIME117 SN, PRIME135 BA, PRIME137 BA, PRIME176 LU, PRIME179 HF, PRIME195 PT, PRIME197 AU, AND PRIME199 HG. EITHER A 0.95 MM PT TARGET OR A 2MM PB TARGET WAS USED. TIME OF THE IRRADN. WAS OF 3-4 HALF LIVES FOR EACH ELEMENT. THE ACTIVITY INDUCED WAS MEASURED BY A GAMMA RAY SPECTROMETER WITH 40 TIMES 50 MM NAII(TI) CRYSTAL. BASED ON PHOTOPEAK AREA DETNS. THE FOLLOWING SENSITIVITY LIMITS (IN MG) WERE FOUND: PRIME77 SE PRIMEM 0.16, PRIME87 SR PRIMEM 0.3, PRIME89 Y PRIMEM 3.4, PRIME103 RH PRIMEM 2.01, PRIME107 AG PRIMEM 0.24, PRIME111 CD PRIMEM 0.08, PRIME115 IN PRIMEM 0.024, PRIME117 SN PRIMEM 80.0, PRIME135 BA PRIMEM 7.1, PRIME137 BA PRIMEM 1.9, PRIME176 LU PRIMEM 0.96, PRIME179 HF PRIMEM 0.1, PRIME195 PT PRIMEM 0.2, PRIME197 AU PRIMEM 0.1, PRIME199 HG PRIMEM 0.9.

UNCLASSIFIED

USSR

UDC 537.311.33:514.28

KONOZENKO, I.D., VINETSKIY, V.L., VARENTSOV, M.D., YERITSYAN, G.N., SEMENYUK, A.K., STARCHIK, M.I., KHIVRICH, V.I.

"Effect Of Certain Factors On The Processes Of Formation Of Radiation Defects In Silicon And Germanium During Gamma Irradiation"

V sb. Radiatsion. fiz. nemet. kristallov (Radiation Physics Of Non-Metallic Crystals--Collection Of Works), Minak, "Nauka i tekhn.," 1970, pp 22-44 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2B26)

Translation: The kinetics are studied of the buildup of radiation defects in Si and n- and p-type Ge during Gamma irradiation. The effect of the charge state and temperature on the formation of recombination centers is considered as well as the effect of dosage, the intensity of Gamma irradiation, concentration, preliminary irradiation and other factors on the formation of radiation defects. 32 ref. V.B.

1/1

USSR

UDC: 8.74

POPOV, A. A., LAVRIV, Ya. M., STARCHIK, V. P., CHEKAYLO, M. A.,  
SHUL'GA, V. A., SHCHITKO, V. N., YANENKO, V. M.

"Automated System for Statistical Analysis of Medical and Biological Data"

Kibernet. i vychisl. tekhn. Resp. mezhved. sb. (Cybernetics and Computer Technology. Republic Interdepartmental Collection), 1972, vyp. 14, pp 76-82 (from RZh-Kibernetika, No 5, May 73, abstract No 5V778 by the authors)

Translation: The paper discusses the functioning of an automated system for analysis of medical and biological data. Requirements for the software system are given. Statistical methods and criteria are presented which are realized in the system.

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USSR

UDC: 681.3.06:51

LAVRIV, Ya. M., MEL'NIKOV, V. G., POPOV, A. A., STARCHIK, V. P., YANENKO, V. M.

"Formation of an Information Block of Medical Documents in a Clinical Medical Information System"

V sb. Biol., med. kibernet. i bionika (Biology, Medical Cybernetics and Bionics--collection of works), vyp. 3, Kiev, 1970, pp 3-11 (from RZh--Kibernetika, No 7, Jul 71, Abstract No 7V720)

Translation: The existing practice of collecting and storing information in a public health system leads to redundant and partially erroneous data presented in handwritten form, inconvenient for analysis and formulation of a diagnosis. To effectively ensure public health functions, a medical information system is proposed which is a cybernetic system of the "man-automaton" type. The system includes the medical personnel who take care of collecting medical information on the appropriate standard form for the history of an illness as well as evaluating the results of information processing; the system also includes the mathematicians who develop the mathematical apparatus for collecting and processing data

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LAVRIV, Ya. M. et al., Biol., med. kibernet. i bionika, vyp. 3, Kiev, 1970, pp 3-11

(create a flowchart and language for communication between the digital computer and man, algorithms and programs for processing medical information), and the engineering and technical personnel who service the technical facilities of the system. The authors note two approaches to solution of the problems of ensuring effective communication between the physician and the digital computer, and operational accumulation and transmission of information in a form to which the physician is accustomed: 1) development of a specialized medical logical information language, which requires formalizing the representation of the initial data, introducing correctives into the identification of terms, etc.; 2) development of a standardized form for the history of an illness as a preliminary stage to complete formalization. The principles of standardized forms for the history of an illness in the cardiological group are described. The form consists of an explanatory section (algorithms for examination of a patient for various illnesses) and a summarizing section (model or parameters of the state of the patient). An example of a fragment of a standardized form for the history of an illness is described ("Circulatory Organs"). A. Doroshenko.

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Veterinary Medicine

USSR

UDC 619.616.988.21.084:636

STARCHIKOV, V. G., Main Veterinary Administration, Ministry of Agriculture,  
Kazakh SSR

"Problems of the Epizootiology of Animal Rabies"

Moscow, Veterinariya, No 7, 1970, pp 49-50

Abstract: The distribution of recorded cases of rabies among animals in Kazakhstan from 1940 through 1955 was as follows: dogs, 47.7%; cattle 37.1%; camels, 12.2%; horses, 2.9%; sheep, 0%. For 1955 to 1970 the distribution was: dogs, 3.3%; cattle, 65.4%; sheep, 26.6%; horses, 2.8%; camels, 1.9%. For the year 1969, the distribution was: sheep, 49%; cattle, 43.1%; camels, 2.2%; horses 1%; dogs, 1.5%; wild carnivores (foxes, wolves), 2.8%; cats, 0.4%. Between 1940 and 1955, the principal source of the spread of rabies among farm animals was infected dogs; in recent years atypical cases of rabies in cattle bitten by foxes have increased. In some regions rabies appears periodically as a result of migration of wild animals. The incidence of the disease is cyclic; there is an increased frequency of occurrence every 2-3 yrs among farm animals in connection with a similar cycle among wild carnivores. Seasonal peaks are noted in the winter and spring months, during the migration of carnivores. On the basis of the seasonal increase in the disease, prophylactic immunization is being carried

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USSR

STARCIKOV, V. G., Veterinariya, No 7, 1970, pp 49-50

out for dogs and, where a danger of infection of other animals exists, also for cattle and other species. One or two administrations of the phenol antirabies vaccine were not sufficient to produce strong and lasting immunity in cattle; forced immunization of cattle on an accelerated schedule is now being conducted. A new, rapid method proposed by Prof. K. N. Buchnev for diagnosing rabies based on diffusion precipitation in agar, has been introduced.

2/2

USSR

UDC 591.513.2:599.323.4

STARODUBTSEV, YU. D., Chair of Physiology of Higher Nervous Activity

"A Method of Forming Optimum Path Reflexes in Rats"

Moscow, Vestnik Moskovskogo Universiteta, Vol 6, Nov/Dec 70, pp 115-117

Abstract: One effective way to study the physiological mechanisms of complex motor activities in animals is to experimentally induce the formation of chains of motor reflexes. The two existing methods of producing reflex chains are based on joining existing simple reflexes and on adding new reflexes one after another. Under natural conditions, however, an animal finds food not by making its habits more complex, but as a result of a protracted search which eventually develops the sequence of activities required to gain food. This process was imitated in this study. Rats were kept in a transparent cage supplied with eight shelves. Climbing on these shelves released sounds which functioned as stimuli. A door behind which food was located opened only after the shelves were climbed in a definite sequence, for example shelves eight, five and two, regardless of how often other shelves were climbed upon between the three crucial shelves. Initially, this sequence was attained at random with many other motor activities in between, for example, shelves number 4-2-1-5-8-4-2-3-1-7-5-1-6-4-2. Reinforcement (acquisition of Food)

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USSR

"  
STARDODUBSTEV, YU. D., Vestnik Moskovskogo Universiteta, Vol 6, Nov/Dec 70,  
pp 115-117

gradually reduced the number of unnecessary motor activities until the reflex chain of climbing only on shelves 8, 5, and 2 was developed. This method may prove useful for the elucidation of the neurophysiological mechanisms of natural formation of complex motor habits.

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USSR

UDC: 621.319.4

3

NEYMAN, M. I., SOKOLOVA, M. A., SVERDLOVA, A. N., ~~MINOGRADOVA, N. V.~~, RYN-  
DINA, L. P., STARENCHENKO, V. G., KOTEL'NIKOVA, I. P.

"Thin-Film Ceramic Capacitors With High Specific Capacitance"

Elektron. tekhnika. Nauch.-tekhn. sb. Radiodetali (Electronic Technology.  
Scientific and Technical Collection. Radio Components), 1970, vyp. 4(21),  
pp 3-9 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V322)

Translation: The authors discuss a new method of making thin-film ceramic  
capacitors with high specific capacitance. Their basic electrical charac-  
teristics are given.

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USSR

UDC 541.15:678.742

STAREN'KIY, A. G., LAVRENTOVICH, Ya. I., and KABAKCHI, A. M., Institute of Physical Chemistry, Acad. Sc. USSR

"Effect of the Type and of the Energy of Radiation on the Radiolysis of Polypropylene"

Moscow, Vysokomolekulyarnyye Soyedineniya, Vol 12, No 11, Nov 70, pp 2,476-2,480

Abstract: Isotactic polypropylene has been irradiated with  $\gamma$ -rays and  $\alpha$ -particles with energy of 28 Mev in an attempt to investigate the nature of early stages in the radiolysis of this polymer. The structure of the tracks of charged particles appeared to have an effect on chemical processes. At low doses polypropylene is degraded yielding 0.86 bonds per 100 ev, while at higher doses it is crosslinked. Gel-fraction is obtained at 25 Mrad with  $\gamma$ -irradiation but only at 50 Mrad when  $\alpha$ -particles were used. It was determined that  $\gamma$ -particles are less effective in the crosslinking process and in formation of diene and triene sequences than  $\gamma$ -irradiation, but they are more effective in the processes of the formation of vinylidene bonds. Possible mechanism for the primary reactions in radiolysis have been proposed.

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1/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--FORMATION OF ANION RADICALS IN NUCLEOPHILIC AROMATIC SUBSTITUTION  
REACTIONS -U-  
AUTHOR-(05)-SHEIN, S.M., BRYUKHOVETSKAYA, L.V., PISHCHUGIN, F.V.,  
STARICHENKO, V.F., PANFILOV, V.N.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. STRUKT. KHIM. 1970, 11(2), 243-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--EXCHANGE REACTION, AROMATIC NITRO COMPOUND, ANION, EPR,  
COMPLEX COMPOUND, ETHER, ESTERIFICATION, PHENOL, HALOGEN  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY FICHE NO----FD70/605018/B09 STEP NO--UR/0192/T0/011/002/0243/0248  
CIRC ACCESSION NO--AP0140796  
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--04DECTC

CIRC ACCESSION NO--AP0140796

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE TYPICAL REACTION OF NUCLEOPHILIC SUBSTITUTION WITH A NO. OF AROMATIC NITRO DERIVS. I (R EQUALS NO SUB2, R PRIME1 EQUALS H), R PRIME2 EQUALS F, CL, BR, NO SUB2, OME, SME, SCF SUB3, SO SUB2 ME; I (R EQUALS CL, R PRIME1 EQUALS NO SUB2), AND I (R EQUALS OME, R PRIME1 EQUALS NO SUB2). R PRIME2 EQUALS NO SUB2, CF SUB3, SO SUB2 ME, SO SUB2 CF SUB3, RESP., THE FORMATION OF ANION RADICALS WAS OBSD. (EPR). THE TRANSEETHERIFICATION REACTION OF ALKYL ETHERS OF MONO AND POLYNITROPHENOLS IS ASSDGD. WITH THE FORMATION OF ANION RADICALS FROM THESE COMPOS. THAT REMAIN IN EQUIL. WITH STARTING PRODUCTS AND SIGMA COMPLEXES. SIMILARLY ANION RADICALS WERE OBSD. DURING THE REPLACEMENT OF HALOGEN OR NITRO SUBSTITUENTS. UNDER THESE CONDITIONS NITRO COMPOS. I (R EQUALS OME OR CL) FAIL TO PRODUCE ANION RADICALS IN DETECTABLE CONCNS. FACILITY: INST. ORG. KHIM., NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR

UDC: 621.372.85(088.8)

MANDEL'SHTAM, M. Ya., STARIK, A. M.

"A Coaxial Discharger for Blocking a Transmitter"

USSR Author's Certificate No 273305, filed 12 Dec 64, published 14 Sep 70  
(from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 23221 P)

Translation: This Author's Certificate introduces a coaxial discharger for transmitter blocking made in the form of a tee with a resonant window connected in the side branch. In order to tune the discharger to a predetermined frequency, a coaxial loop of controllable length open at the end is connected to the face in which the resonant window is located. This loop is formed by a continuation of the outer conductor of the coax and a metal rod of variable length connected to the central section of the resonant window.

1/1

USSR

UDC: 621.396.679.4(088.8)

MANDEL'SHTAM, M. Ya. and STARIK, A. M.

"Coaxial Resonance Discharger for Receiver Protection"

Avt. sv. SSSR (Author's Certificate USSR) Class 21a<sup>4</sup>, 73, (H 01 p 1/14), No. 272405, Application 10.01.64, Publication 22.09.70  
(from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3B93P)

Translation: The proposed discharger contains hermetically sealed coaxial sections. For the purpose of broadening the operating frequency band, resonance diaphragms formed by hollow metal tubes which connect the inner and outer conductors of the coaxial line, and metal rods, one end of which is connected to the outer conductor, are inserted into the coaxial section.

1/1

1/2 029 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--FORMATION OF A PULSED UHF, ULTRAHIGH FREQUENCY, DISCHARGE UNDER  
ELECTRON CYCLOTRON RESONANCE CONDITIONS -U-  
AUTHOR--(03)--ABRAMOVA, T.S., GOLANT, V.YE., STARIK, A.M.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. TEKH. FIZ. 1970, 40(5), 982-6  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--CYCLOTRON RESONANCE, HIGH FREQUENCY DISCHARGE, ULTRAHIGH  
FREQUENCY, GAS DISCHARGE, GAS PRESSURE, DIFFUSION COEFFICIENT, MAGNETIC  
FIELD EFFECT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3004/0926 STEP NO--UR/0057/70/040/005/0982/0986  
CIRC ACCESSION NO--AP0131512

UNCLASSIFIED



UNCLASSIFIED

PROCESSING DATE--27NOV70

2/2 029

CIRC ACCESSION NO--AP0131512

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CRIT. FIELD,  $E_{SUBCR}$ , CORRESPONDING TO THE FORMATION OF A UHF DISCHARGE IS CONSIDERABLY DECREASED AT CYCLOTRON RESONANCE. THE FORMATION OF SUCH A DISCHARGE WAS STUDIED EXPTL. IN HE, NE, AR, KR, AND Xe AT 3 CM WAVELENGTH UNDER RESONANCE CONDITIONS,  $E_{SUBCR}$  WAS DETD. AT DIFFERENT PRESSURES BY MEASURING THE POWER TRANSMITTED THROUGH A WAVEGUIDE HAVING A GAS CONTAINER. BY CONSIDERING DIFFERENT DIFFUSION COEFFS. CORRESPONDING TO FREE AND AMBIPOLAR DIFFUSIONS AND BY USING THE THEORY OF FORMATION OF A UHF DISCHARGE (1957),  $E_{SUBCR}$  WAS CALCD. AS A FUNCTION OF PRESSURE FOR HE, NE, AND AR. THE EXPTL. AND THEORETICAL CURVES AGREE FAIRLY WELL. COMPARISON OF RESULTS WITH THOSE IN THE ABSENCE OF THE MAGNETIC FIELD SHOWED THAT THE CYCLOTRON RESONANCE REGION IS CHARACTERIZED BY A MIN. VALUE OF  $E_{SUBCR}$  4-5 TIMES LOWER. THE PRESSURE CORRESPONDING TO MIN.  $E_{SUBCR}$  IS ALMOST 2 ORDERS OF MAGNITUDE LESS THAN THAT IN THE ABSENCE OF THE MAGNETIC FIELD.

UNCLASSIFIED

USSR

UDC 621.375.82

3

KURBATOV, L. N., BRITOV, A. D., DIROCHKA, A. I., KOZINA, G. S., MOCHALKIN, N. N.,  
AVER'YANOV, I. S., STARIK, P. M.

"Stimulated Radiation of Solid Solutions of Tin and Lead Chalcogenides in the  
10-Micron Band"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), No 3, Mos-  
cow, Soviet Radio, 1972, pp 97-99 (from RZh-Fizika, No 12, Dec 72, Abstract No  
12D982)

Translation: A study was made of recombination radiation in the presence of  
electron excitation, and induced emission was obtained in  $Pb_{1-x}Sn_xSe$  crystals  
grown by the Bridgman method with  $x = 0.04, 0.05, \text{ and } 0.07$  and in  $Pb_{1-x}Sn_xTe$   
crystals grown from the gas phase with  $x = 0.17 \text{ and } 0.18$ . The radiation wave-  
length at  $90^\circ K$  is within the 8-11-micron band. The pulse power is 1-10 mil-  
liwatts. A study was made of the temperature functions. The maximum operating  
temperature does not exceed  $140^\circ K$ . The bibliography has 5 entries.

1/1

1/2 010 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--TEMPERATURE DEPENDENCE OF CARRIER MOBILITY IN P-LEAD TELLURIDE -U-  
AUTHOR--(02)-STARIK, P.M., AKIMENKO, N.I.  
COUNTRY OF INFO--USSR  
SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(2), 340-2  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, PHYSICS  
TOPIC TAGS--LEAD COMPOUND, TELLURIDE, TEMPERATURE DEPENDENCE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1996/1940 STEP NO--UR/0185/70/015/002/0340/0342  
CIRC ACCESSION NO--AP0118902  
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118902

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TEMP. DEPENDENCE OF THE CARRIER MOBILITY IN P-PB TELLURIDE IS USUALLY DESCRIBED BY  $\mu$  EQUALS SUB  $\mu_0 T$  PRIME NEGATIVEK (2 IS LESS THAN K IS LESS THAN 3). BASED ON THE NONPARABOLIC CHARACTER OF THE CONDUCTION BAND SPECTRA AND ACOUSTIC SCATTERING MECHANISM, A THEORY IS GIVEN TO ACCOUNT FOR SUCH A TEMP. DEPENDENCE. VALUES OF THE THEORETICALLY CALCD. AND EXPT. DETD. COND. IN THE TEMP. RANGE 100-400DEGREEK ARE IN GOOD AGREEMENT. FACILITY: CHERNIGOV. PEDINST. IM. SHEVCHENKO, CHERNIGOV, USSR.

UNCLASSIFIED

USSR

UDC: 621.375.82

VAHYUKOV, M. P., MITKIN, V. M., SEREBRYAKOV, V. A., SOKOLOV, D. V.,  
and STARIKOV, A. D.

"Monopulse Lasers Using Neodymium Glass With Diffraction Divergence  
of Radiation"

Moscow, V sb. Kvant. elektronika (Quantum Electronics--collection  
of works) "Sov. radio," No 1(13), 1973, pp 85-89 (from RZh--Fizika,  
No 7, 1973, Abstract No 7D985)

Translation: An investigation is made of a number of monopulse  
lasers using neodymium glass with various optical resonator con-  
figurations for the purpose of determining the optimal variant of  
the master oscillator in a power laser device with intense bright-  
ness. The basic physical requirements for designing a stable mono-  
pulse oscillator with diffraction angular divergence of the radia-  
tion are formulated. Bibliography of 12. Authors' abstract

1/1

USSR

UDC 621.378.325 .

VANYUKOV, M. P., Doctor of Sciences, Deceased, KRYZHANOVSKIY, V. I.,  
SEREBRYAKOV, V. A., SIZOV, V. N., STARIKOV, A. D.

"Multichannel Neodymium Glass Laser System with Picosecond Radiation Pulse  
Length"

Optiko Mekhanicheskaya Promyshlennost', No 12, 1972, pp 31-32.

Abstract: A powerful three-channel laser system made with neodymium glass  
with picosecond pulse length and an angular divergence near the diffraction  
limit is described. The output radiation energy of the device reaches  
1,000 j with a pulse power of  $10^{14}$  w.

1/1

- 71 -

USSR

UDC: 621.373.826

STARIKOV, A. D.

"A High-Brightness Monopulse Laser for Producing a High-Temperature Plasma"

Tr. Gos. optich. in-ta (Works of the State Optics Institute), 1972, 40, No 171, pp 6-7 (from RZh-Radiotekhnika, No 8, Aug 72, Abstract No 8D169)

Translation: Development of high concentration of the power of luminous emission requires a laser with high emission brightness and an output beam of large cross section and also an aberration-free optical system capable of collecting the entire light beam in a volume of minimum size. The system worked out consists of a low-power master oscillator based on neodymium glass with emission divergence angle close to the diffraction angle, and four amplification stages with gradually increasing rod diameters. A Galilean telescope is used to increase the cross section of the light beam. The laser output emission included in the diffraction core of the beam has brightness  $B = 1.3 \cdot 10^{17} \text{ W/cm}^2 \cdot \text{ster}$ ; axial brightness is of the order of  $10^{18} \text{ W/cm}^2 \cdot \text{ster}$ . The system generates emission with an energy of 100 J at a power of 10 GW. The diameter of the output beam is 27 mm. A specially developed lens can be used to concentrate the emission energy in a volume with diameter of  $1 \cdot 10^{-2} \text{ mm}$ , which gives a light flux with a density of  $10^{15} - 10^{16} \text{ W/cm}^2$ . Resumé.

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USSR

UDC 621.378.325

VANYUKOV, M. P., KRYZHANOVSKIY, V. I., SEREBRYAKOV, V. A., STARIKOV, A. D.

"Laser Systems for Generating High-Intensity Picosecond Light Pulses"

Moscow, Kvantovaya Elektronika, No. 5, 1971, pp 69-76

Abstract: A laser system with a radiation energy of 60-80 joules in a pulse of duration  $(2-5) \cdot 10^{-11}$  sec was developed, and the energy densities of total surface and internal breakdown of active elements by pulses of various durations were determined. The authors note that a high-intensity laser system is required to heat a plasma up to thermonuclear temperatures and that the system should incorporate the possibility of producing radiation pulses of great power at a low divergence of the light beam. This paper is devoted to problems arising in developing the following: (1) a master generator of picosecond pulses with a radiation divergence close to the diffraction limit; (2) a multicascade amplifier system with minimum distortion of the wave front of the beam; (3) a nonaberrational optical system to concentrate radiation on the target. A multipass amplifier with an amplification coefficient of up to  $10^3$  was designed with which it was possible to obtain an output energy of 0.6 joule for a pulse length of  $(5-10) \cdot 10^{-12}$  sec at an angle close to the diffraction limit while using the low-power master generator. Further amplification of the light beam raised the radiation energy up to 40 joules and provided a brightness in the diffraction core of the beam of  $(4-5) \cdot 10^{19}$  w/sterad $\cdot$ cm $^2$  and an axial brightness of more

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USSR

VANYUKOV, M. P., et al, Kvantovaya Elektronika, No. 5, 1971, pp 69-76

than  $10^{20}$  w/sterad $\cdot$ cm $^2$ . The authors claim that this is higher than the known values of brightness obtained in powerful laser systems by an order of magnitude. Studies also showed that the energy density in a pulse at which the active elements of the amplifier cascades begin to breakdown intensively is 5-6 joule/cm $^2$  and changes very little with a change in the duration of the laser pulse in the range  $5 \cdot 10^{-9}$  -  $5 \cdot 10^{-11}$  sec. Upon achieving these energy densities there was a light breakdown causing total dulling of the surface after only 4-5 bursts on the surface of the output end. In the opinion of the authors intensive self-focusing arising in the rods of the output amplifier cascades is primarily responsible for breakdown of the ends of the active elements. In neodymium glass there arise multiple intensive nets of self-focusing, a considerable portion of which end at the output face of the active element, and this determines the appearance of light breakdown at the face. In rods with a platinum admixture there were local breakdowns with the formation of bubbles, which in the case of self-focusing led to strong scattering of the radiation. The authors conclude that a further rise in the energy and power of the output radiation of solid state lasers will involve increasing the resistance of active elements to the action of the intense light field and the fabrication of active elements of greater cross section with higher optical homogeneity.

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3

USSR

UDC 621.373:530.145.6

AVDEYEVA, V. I., AL'PEROVICH, M. A., VANYUKOV, M. P., ISAYENKO, V. I.,  
LEVKOYEV, I. I., SEREBRYAKOV, V. A., STARIKOV, A. D.

"Use of Liquid and Film Transmission Gates in a GOS-1000 Laser"

V sb. Kvant. elektronika (Quantum Electronics--collection of works),  
No 2, Moscow, 1971, pp 69-73 (from RZh-Radiotekhnika, No 7, Jul 71,  
Abstract No 7D114)

Translation: Data are presented on a transmission gate based on a thin  
polymer film into which polymethylene dye is introduced, and on the use  
of this gate in a GOS-1000 laser as a Q-switch. Four illustrations,  
bibliography of five titles. Résumé.

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USSR

UDC: 621.378.325

AVDEYEVA, V. I., AL'PEROVICH, M. A., VANYUKOV, M. P., ISAYENKO, V. I.,  
LEVKOYEV, I. I., SEREBRYAKOV, V. A., STARIKOV, A. D.

"Use of Translucent Liquid and Thin-film Gates in the GOS-1000 Laser"

Moscow, Kvantovaya Elektronika, No 2, 1971, pp 69-73

Abstract: The authors present data on a translucent laser gate based on a thin polymer film to which polymethylene dye has been added, and it is shown that such a film gate can be used along with a liquid gate to obtain high-power monopulse emission in the GOS-1000 laser. It is found that film and liquid gates can be used for Q-switching neodymium glass lasers with a large output beam aperture (45 mm or more). The described gates are fairly simple and can be used in serially produced industrial lasers type GOS-1000, in the analogous type GOS-300 unit and others without any appreciable change in the construction of the device or in the power supply circuit. The highest energy and emission power on the GOS-1000 laser in the monopulse mode (80 J and 2.5 GW) can be attained by using a gate which is a cell filled

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USSR

AVDEYENKO, V. I. et al., Kvantovaya Elektronika, No 2, 1971, pp 69-73

with polymethyne dye solution. The new film gate described in this paper, which is a thin polymer film with polymethyne dye added to the film base, is most simple in use and provides comparatively high emission parameters in the GOS-1000 laser (50 J and 1.5 GW), has no optical components in its design, is suitable for use for long periods (8-10 months), and can be used repeatedly at comparatively low energies in the monopulse (20 J).

USSR

UDC 621.375.82

VANYUKOV, M. P., ISAYENKO, V. I., PASHININ, P. P., SEREBRYAKOV, V. A.  
SIZOV, V. N., STARIKOV, A. D. 2

"Formation of Powerful Pulses With a Steep Leading Front in a Laser System With Passive Nonlinear Elements"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No. 1, Moscow, 1971, pp 35-41 (from RZh-Fizika, No 7, Jul 71, Abstract No 7D1147)

Translation: The change in the length of light pulses in passage through an illuminating medium of varying transparency was investigated. A nonmonotonic shortening of the length of the trailing pulse was observed under a change in the density of the light load. There was established a dependence of the region of maximum contraction of the light pulse on the magnitude of the light load for various concentrations of the illuminating solutions. There was also established an anomalous change in the process of illumination of a metallized film under its illumination by powerful light radiation. It is proposed that the effects observed be used for the formation of short pulses with a steep leading front. A neodymium glass laser system with a pulse length of 5-7 nsec, a steepness of the leading front of  $\sim 1$  nsec, and a radiation power of 20 Gw was developed. 10 ref. Authors abstract

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USSR

UDC 621.373.826

VANYUKOV, M. P., KRYZHANOVSKIY, V. I., SEREBRYAKOV, V. A., STARIKOV, A. D.

"Laser Systems for Generation of Picosecond High-Brightness Light Pulses"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), Moscow, No 5, 1971, pp 69-76 (from RZh-Radiotekhnika, No 1, 1972, Abstract No 1D346)

Translation: A laser system with a radiation energy of 60-80 joules in a pulse of duration  $(2-5) \cdot 10^{-11}$  seconds was developed, and the energy densities of the total surface and internal destruction of the active elements by pulses of different duration were determined. A multipass amplifier circuit with an amplification coefficient up to  $10^3$  was created, which, on using a low-power master oscillator, permitted an output energy of 0.6 joules to be obtained with a pulse duration of  $(5-10) \cdot 10^{-12}$  seconds at an angle close to the diffraction limit. Further amplification of the light beam permitted an increase in the radiation energy to 40 joules. This insured a brightness in the diffraction core of the beam of  $(4-5) \cdot 10^{19}$  watts/steradian-cm<sup>2</sup> and an axial brightness of more than  $10^{20}$  watts/steradian-cm<sup>2</sup>. There are 6 illustrations and an 18-entry bibliography.

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USSR

UDC: 621.373:530.145.6

VANYUKOV, M. P., ISAYENKO, V. I., PASHININ, P. P., SEREBRYAKOV, V. A.,  
SIZOV, V. N., STARIKOV, A. D.

"Shaping of High-Power Pulses With a Steep Leading Edge in a Laser System  
With Passive Nonlinear Elements"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), No 1,  
Moscow, 1971, pp 35-41 (from RZh-Radiotekhnika, No 5, May 71, Abstract No  
50177)

Translation: An investigation is made of the change in duration of light pulses during passage through illuminated media of different transparencies. A nonmonotonic reduction in pulse duration after passage through the medium is observed when there is a change in the density of the light load. A relationship is established between the region of maximum constriction of the light pulse and the magnitude of the light load for different concentrations of transilluminated media. An anomaly is found in the curve for the process of transillumination of a metallized film when it is exposed to intense light flux. Recommendations are made on using the observed effects for shaping short pulses with a steep leading edge, leading to development of a laser system based on neodymium glass with a pulse length of 5-7 nsec with a rise time of approximately 1 nsec and emission power of 20 GW. Five illustrations, bibliography of ten titles. Resumé.  
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USSR

UDC 669.3'24.053.4

KHAVSKIY, N. N., KRASNOZHEN, S. V., ZELIKMAN, Yu. L., STARIKOV, A. M.

"Study of Effectiveness of Application of Ultrasound for Dispersion of Sulfide Copper-Nickel Ore"

Primeneniye Ul'trazvuka v Metallurg. Protsessakh [Use of Ultrasound in Metallurgical Process -- Collection of Works], Moscow, 1972, pp 145-147, (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G362 by the authors ).

Translation: The possibility is studied of dispersion of sulfide Cu-Ni ore using US oscillations under atmospheric and increased hydrostatic pressure. The US source was a magnetostriction convertor type PMS-6M. With an S-L ratio of 1:100, temperature 75°, and pressure in the operating chamber of 5 atm, an ore with a grain size of 100% + 0.1 mm is fully dispersed in 2 hours to a grain size of 100% - 0.1 mm, 80% of the initial mass of the initial ore specimen being dispersed to this size in the first 15 minutes. 1 Figure; 3 Tables.

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USSR

UDC:533.6

BAZARNOVA, N. M., KRYLOV, A. A., STARIKOV, B. B.

"Experimental Study of Flow Around a Sphere by a Stream of Rarefied Gas"

Aerodinamika Razrezh. Gazov [Aerodynamics of Rarefied Gases -- Collection of Works], No 6, Leningrad University Press, 1973, pp 105-113  
(Translated from Referativnyy Zhurnal Aviatsionnyye i Raketnyye Dvigateli, No 9, 1973, Abstract No 9.34.10)

Translation: Results are presented from experimental studies of the distribution of pressure on the surface of an insulated sphere in a stream of rarefied gas. Experiments were performed at  $M=3.6-3.8$ , the change in rarefaction of the stream with flow around the sphere corresponded to a transient flow mode ( $Re_{\infty}=10-130$ ). Results are produced as to the pressure on the surface of the sphere practically for the entire transient flow mode. The pressure on the upwind side of the sphere for all modes does not change as the rarefaction changes and is well described by the theory of Newton. The rarefaction of the stream has no influence on the nature of distribution in the bottom portion of the sphere; the measured bottom pressures, to 10% of the static pressure in the stream. 5 Figures;  
11 Biblio. Refs.

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Resume

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USSR

UDC: 621.317:621.391.822

GOROZHDANOV, D. P., PUODZHYUKINAS, A. A., STARIKOV, B. D.

"On the Problem of Measuring Noise Temperatures in Low-Noise SHF Receivers"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp 21-22 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A319)

Translation: The authors present a schematic diagram for measuring low noise temperatures in SHF receivers with the use of a cold load and connection of a noise generator through a directional coupler. A formula is given for determining the error in noise temperature measurement. Analysis shows the appreciable effect of some parameters of the directional coupler on error. It is concluded that the directional coupler must satisfy rigid requirements. E. L.

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USSR

UDC: 539.163:546.296

BAKULIN, V. N., STARIKOV, B. G.

"Separate Determination of the Concentration of Rn, RaA, RaB and RaC in Air From the Curve for Decay of  $\alpha$ -Radioactivity of a Filter"

Tr. In-t eksperiment. meteorol. Gl. upr. gidrometeorol. sluzhby pri Sov. min. SSSR (Works. Institute of Experimental Meteorology. Main Administration of the Hydrometeorological Service Affiliated With the Council of Ministers of the USSR), 1972, vyp. 25, pp 102-108 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 6, Jun 72, Abstract No 6.32.1274)

Translation: The relations between radon and its decay products are of interest in studying processes of turbulent mixing and elution of impurities in the lower troposphere. Analysis of different methods of separate determination of concentrations of daughter products of radon shows that only a few of them give satisfactory accuracy for low concentrations of radon in the atmosphere. An analytical analog is developed for the graphic method of separate determinations of concentrations of  $Po^{218}$ ,  $Pb^{214}$  and  $Bi^{214}$  from the curve for decay of  $\alpha$ -radioactivity of a filter, which gives the same accuracy as the method of least squares for three unknowns, but is several

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USSR

BAKULIN, V. N., STARIKOV, B. G., Tr. In-t eksperim. meteorol. Gl. upr. gidrometeorol. sluzhby pri Sov. min. SSSR, 1972, vyp. 25, pp 102-108

times simpler with respect to computations. Comparison of these methods under conditions of unknown proportions between radon decay products has shown the complete adequacy of the method. A proof is given for the existence of standard proportions between short-lived products of radon disintegration under natural conditions, which permits determination of the concentration of each of them from the curve of  $\alpha$ -disintegration in the range from 11-13 to 60 minutes after completing filtration. Three illustrations, four tables, bibliography of eighteen titles. Resumé.

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1/2 019 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--TURBULENT EXCHANGE AND WASH OUT BY MEASUREMENT OF NATURAL  
RADIOACTIVITY IN SURFACE AIR -U-  
AUTHOR-(04)-BAKULIN, V.N., SENKO, E.E., STARIKOV, B.G., TRUFAKIN, V.A.  
COUNTRY OF INFO--USSR  
SOURCE--J. GEOPHYS. RES. 1970, 75(18), 3669-74  
DATE PUBLISHED-----70  
SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, ATMOSPHERIC SCIENCES  
TOPIC TAGS--ATMOSPHERIC RADIOACTIVITY, RADON, ATMOSPHERIC CIRCULATION,  
AEROSOL, DIFFUSION COEFFICIENT, NATURAL RADIOACTIVITY, RADIOACTIVE DECAY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3007/1060 STEP NO--US/0000/70/075/018/3669/3674  
CIRC ACCESSION NO--AP0136480  
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136480

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BASED ON A COMPARISON OF METHODS OF MEASURING THE DEGREE OF DISEQUIL. BETWEEN THE SHORT LIVED DECAY PRODUCTS OF RN, AN IMPROVED AND SIMPLIFIED METHOD IS PROPOSED FOR GENERAL USE. IN ACCORDANCE WITH THEORETICAL CONSIDERATIONS, THE EXISTENCE OF A LINEAR DEPENDENCE BETWEEN RAA-RAB (PRIME218 PO-PRIME214 PB) AND RAB-RAC (PRIME214 PB-PRIME214 BI) CONCNS. RATIOS IN THE ATM. IS ESTABLISHED, PERMITTING DETN. OF THE ATM. CONCNS. OF RN, RAA, RAB, AND RAC FROM 2 POINTS ON THE RADIOACTIVITY DECAY CURVE FOR AEROSIL SAMPLES COLLECTED ON A FILTER. AS A RULE, 2 MAX. IN THE DIURNAL VARIATION OF DISEQUIL. BETWEEN RN AND ITS DAUGHTER PRODUCTS HAVE BEEN OBSERVED. FROM THE DIFFERENCES IN THIS VARIATION AT ALTITUDES OF 1, 11, AND 20 M, AN ATTEMPT IS MADE TO EXPLAIN THE MECHANISM OF CONVECTIVE AND DYNAMIC COMPONENTS OF TURBULENT EXCHANGE NEAR THE GROUND. FROM THE DIURNAL VARIATIONS OF RN AND THORON (PRIME220 RN) CONCNS. AT 1 AND 5 M AND THEIR SHORT LIVED DECAY PRODUCTS AT 1, 11, AND 20 M ABOVE THE GROUND, THE DIURNAL CHANGE IN THE TURBULENT DIFFUSION COEFF. IN THE SURFACE LAYER IS COMPUTED AND COMPARED WITH THAT FROM METEOROL. PARAMETERS. THE VELOCITY OF WASH OUT OF THE TROPOSPHERE IS ESTD. FROM RN-RAD CONCNS. RATIO VARIATIONS AVERAGED FOR 1 DAY INTERVALS. FACILITY: STATE TEACHER INST., KIROV, USSR.

UNCLASSIFIED

31 Oct 72

60

770:SOVIET SCIENCE

33. USSR

"Scientific Research Institute of Roentgenology, Radiology, and Oncology, Ministry of Health Ukrainian SSR"  
Moscow, Meditsinskaya Gazeta, 4 Aug 72, p 3

Prof I. Ryzh -- leader of the Clinical Division

34. USSR

"Siberian Medical Institute"

Moscow, Meditsinskaya Gazeta, 24 May 72, p 3  
Docent G. P. Zil'ber -- head of the Chair of Social Hygiene and the Organization of Public Health

MEDICINE

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35. USSR

"Leningrad Medical Institute"

Moscow, Meditsinskaya Gazeta, 5 Jul 72, p 4  
A. Lebedev -- docent of the Chair of Normal Physiology

36. USSR

"Sverdlovsk Medical Institute"

Moscow, Meditsinskaya Gazeta, 14 Jul 72, p 3  
G. Starikov -- doctor

M. Gerasimov -- Inspector

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med

USSR

UDC 621.317.443

KOVAL'KO, L. M., SKORODUMOV, S. A., STARIKOV, I. V., TRET'YAKOV, L. M.

"Multichannel Analog Magnetic Measuring System"

Tr. VNII elektroizmerit. priborov (Works of the All-Union Scientific Research Institute of Electrical Measurement Instruments), 1971, 7, pp 82-90 (from Referativnyy Zhurnal, Metrologiya i izmeritel'naya tekhnika, No 11, Nov 71, Abstract No 11.32.1752)

Translation: The parameters of a magnetic measuring system that is intended for measuring and recording magnetic field strength at ten points up to 3000 oe where the field varies with a frequency up to 30 Hz are given. The operation and characteristics of the field convertor in the form of a Hall transducer excited by an alternating current are described. Static and dynamic errors in the system are analyzed and methods for reducing them are noted.

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1/2 007 UNCLASSIFIED PROCESSING DATE--11SEP70 /  
TITLE--UNIFORMITY OF A SINTER CHARGE -U-  
AUTHOR--KORDTICH, V.I., BUTIVCHENKO, V.N., KOMORNIKOV, G.I., STARIKOV,  
M.A.  
COUNTRY OF INFO--USSR  
SOURCE--STAL: 1970, 30(1), 1-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, EARTH SCIENCES AND OCEANOGRAPHY  
TOPIC TAGS--SINTER, IRON ORE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1987/0143 STEP NO--UR/0133/70/030/001/0001/0007  
CIRC ACCESSION NO--AP0103822  
UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0103822

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. FROM THE MICRONON UNIFORMITY STANDPOINT, AN IDEALLY MIXED SINTERING CHARGE CAN BE CONCEIVED AS A NO. OF ADJOINING ELEMENTARY CELLS, FOR EXAMPLE CUBES, THE EDGE OF WHICH IS EQUAL TO THE DISTANCE  $L$  BETWEEN NEIGHBORING SIMILAR PARTICLES HAVING DIAM.  $A$ . THIS DISTANCE IS GIVEN AS  $L$  EQUALS  $A/P$  TIMES  $10$  PRIME  $7$ - $\gamma$  AF  $1$  PRIME ONE HALF WHERE  $P$  IS  $D$ ,  $\gamma$  IS CHARGE  $D$ ,  $A$  IS THE PERCENTAGE OF A GIVEN COMPONENT, AND  $F$  IS THE PERCENTAGE OF A GIVEN FRACTION OF THE COMPONENT. THIS DISTANCE VARIES LARGELY AS A FUNCTION OF PARTICLE SIZE, THUS DEFINING THE CELL REQUIRED FOR THEORETICAL NONUNIFORMITY, WHICH IS NONUNIFORMITY IN THE CASE OF IDEALLY UNIFORM DISTRIBUTION OF SEP. PARTS IN A VOL. OF CHARGE. EXAMPLES OF DIMENSIONS OF THESE CELLS FOR DIFFERENT SIZES OF VARIOUS MATERIALS OF A SINTERING CHARGE ARE GIVEN. ACTUALLY THEY HAVE TO BE MARKEDLY INCREASED, ON ACCOUNT OF INADEQUATE MIXING, TO PROVIDE SUFFICIENT SAMPLES. THE NO. OF SAMPLES OF THIS SIZE NEEDED TO PROVIDE THE AV. COMPN. DECREASES WITH THEIR LARGE VOL.; FOR THE CONDITIONS DESCRIBED, 30-50-CM PRIME  $3$  SAMPLES ARE SUFFICIENT. MACRONONUNIFORMITY IS A FUNCTION OF MIXING, WHICH REDUCES IT WITHOUT ELIMINATING IT.

UNCLASSIFIED

USSR

UDC 533.92:621.039.61

VASIL'YEV, M. P., KUZNETSOV, Yu. K., PAVLICHENKO, O. S., STARIKOV, V. N.

"Effect of the Degree of Homogeneity of a Magnetic Field on the Radiation From a Plasma of Harmonics of Electron Cyclotron Frequency"

Fiz. plazmy i probl. upravl. termoyader. sinteza. Resp. mazhved. sb.  
(Plasma Physics and Problems of the Controlled Thermonuclear Fusion.  
Republic Interdepartmental Collection), 1972, No 3, pp 63-66 (from  
RZh-Fizika, No 11, Nov 72, Abstract No 11G283)

Translation: The results of a study of the spectrum and intensity of the radiation, in the harmonics of an electron cyclotron frequency, from a negative discharge plasma column are presented. It was observed that intense radiation of the cyclotron harmonics, the spectrum of which consists of several narrow lines, arises upon achieving a very high degree of magnetic field homogeneity.

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USSR

UDC: 621.372.8.092.22

IVANOV, V. N. and STARIKOVA, A. L.

"Staircase Delaying Systems with Nonmutual Ferrite Absorber"

Elektron. tekhnika. Nauchno-tekh. sb. Elektron. SVCh (Electronic Engineering, Scientific-Technical Collection, UHF Electronics)  
1970, No. 12, p 79 (from RZh-Radiotekhnika, No 3, March 71, Abstract No. 3B132)

Translation: By the perturbation method, a computation is made of nonmutual losses, dispersion characteristics, and connection resistances of staircase delay systems.

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USSR

UDC: 621.372.825:621.385.63

STARIKOVA, A. L.

"Nonmutual Losses in a 'Squirrel Cage' Retarding System Containing Ferrite"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SHF (Electronic Technology. Scientific and Technical Collection. SHF Electronics), 1970, vyp. 3, pp 145-149  
(from RZh-Radiotekhnika, No 7, Jul 70, Abstract no 7B115)

Translation: The author calculates a retarding system of the squirrel cage type where ferrite discs operating in the ferromagnetic resonance mode are next to the main rods in each cell. Two illustrations, bibliography of seven titles. H. S.

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USSR

UDC 669.14

STREKALOVSKIY, M. N., SMIRNOV, Yu. D., CHERNOV, G. I., KATSELI'SON, Ya. Ye.,  
KHOLODOV, Yu. A., STARIKOVA, A. P., MUKHINA, P. P., and MALYGIN, Yu. D.

"Improvement of Technology and Quality of the 18Kh2N4VA Structural Steel as  
the Result of Vacuum Tapping"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISIS) (Collection of  
Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and  
Alloys), Izd-vo "Metallurgiya," No 61, 1970, pp 241-242

Translation of Abstract: An installation is described which ensures metal  
tapping under vacuum. The results of an investigation of some technological  
alternatives for melting and treatment of the 18Kh2N4VA steel are given.

1/1

USSR

UDC 8.74

KASATKIN, V. N., PEREKHOD, I. A., STARIKOVA, N. G.

"Some Problems of the Method of Teaching Programming for Digital Computers"

V sb. Teoriya yazykov i metody postroyeniya sistem programmir. (Language Theory and Methods of Constructing Programming Systems--collection of works), Kiev-Alushta, 1972, pp 121-129 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V407)

Translation: The available experience in teaching a course in "Fundamentals of Cybernetics" in the middle school in which significant attention must be given to the problems of utilizing digital computers and, in particular, programming, is reflected, and this problem is discussed. A two-level procedural scheme is proposed as the basis for the programming course in the middle school. On the first level the students are familiarized with the principles of computer organization of computation with manual programming. For this purpose the Postalogical execution -- relay and on the basis of the MIR series of elements. The description of this computer is presented in the appendix. In the second stage of the training, provision is made for familiarization with the principles of automation of programming and the study of algorithmic languages. The idea of

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USSR

KASATKIN, V. N., et al., Teoriya yazykov i metody postroyeniya sistem programmir., Kiev-Alushta, 1972, pp 121-129

developing a Provisional Algorithmic Language has been advanced. This language must 1) be sufficiently general to reveal the essence of the description of the most varied programs, 2) be free of extraordinary details, 3) as an inseparable part of the system of its operators, include those which permit programs to be written not only for numerical but also for analytical data processing. It is proposed that the subset of languages of the MIR series digital computers, in particular, the ANALITIK language, be taken as the basis for such a language. The first version of a complete set of operators of the Provisional Algorithmic Language is presented in the appendix.



USSR

UDC 577.1:615.7/9

DOMNIN, S. G., SOLOMINA, S. N., STARIKOVA, S. K.

"Comparison of the Danger of Coniosis from the Dust of Low-Grade Bauxites and Alunites"

V sb. Vopr. gigiyeny truda i prof. patol. v metallurgii (Problems of Industrial Hygiene and Occupational Diseases in Metallurgy--Collection of Works), Moscow, 1972, pp 126-131 (from RZh-Biologicheskaya Khimiya, No 17, Sep 73 (Abstract No 17 F1928))

Translation: The fibrosis-producing property of dusts (D) from alunite ore and bauxite low in silica (B) was studied in rats. The extent of development of fibrosis under the influence of alunite D was found to vary with their content of free SiO<sub>2</sub>. Fibrosis induced by low-grade bauxite D is scarcely distinguishable from experimental coniosis resulting from bauxite low in silica. The preliminary maximum permissible concentrations recommended for alunite dust, its concentrate, and low-grade bauxite dust are 2, 4, and 6 mg/m<sup>3</sup>, respectively.

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USSR

UDC 612.112.3.553.62

STARIKOVA, S. K., KATSNEL'SON, B. A., ARONOVA, G. V., and SHNAYDMAN, I. M.,  
Sverdlovsk Institute of Labor Hygiene and Occupational Diseases, and Kazakh  
Institute of Labor Hygiene and Occupational Diseases, Karaganda

"Participation of Polymorphonuclear Leukocytes in Alveolar Phagocytosis of Quartz  
Dust, and Its Connection With the Biological Aggressiveness of Quartz"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol. 70, No. 9, Sep 70,  
pp 113-116

Abstract: Experiments were carried out to determine the effects of chronic inhalation of quartz dust on rats. Macrophages and polymorphonuclear leukocytes were washed out of the lungs by the La Belle and Brieger method, and the ratio between them was determined. Polymorphonuclear leukocytes predominated in experimental animals, while macrophages were more common in the controls since they were less damaged from dust. This relationship was confirmed in a special chronic inhalation experiment in which the resistance of alveolar macrophages to the cytopathogenic effect of quartz was enhanced by treatment with polyvinylpyridine-N-oxide. With endotracheal introduction, quartz treated with trimethylchlorosilane (which resulted in low fibrinogenic activity) caused a significantly lower shift in the cellular composition of lung perfusate toward polymorphonuclear leukocytes than nontreated quartz dust. Phagocytosis of quartz dust by  
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STARIKOVA, S. K., et al, Byulleten' Eksperimental'noy Biologii i Meditsiny,  
Vol 70, No 9, Sep 70, pp 113-116

polymorphonuclear leuhocytes appears to be an additional factor in pulmonary self-purification from especially aggressive particles. This process apparently occurs as a result of irritation by quartz dust and by the products of macrophage degeneration. The neutrophils seem to be less sensitive to the cytopathogenic effect than the macrophages.

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USSR

UDC 613.735:612.766.1

SOLONIN, Yu. G., STARIKOVA, S. K., and MAKAROV, Yu. V., Institute of Labor Hygiene and Occupational Diseases, Sverdlovsk

"The Effect of Physical Training on Some Functional Indices in Heavy Manual Work"

Moscow, Gigiyena i Sanitariya, No 1, Jan 71, pp 107-109

Abstract: Determinations of pulse frequency, respiration frequency, and respiration volume were conducted during performance of work by two groups of laborers doing heavy manual work, some active in athletics and other not active. The age, height, weight, type of work, and effort involved in the work were approximately the same for both groups. There was no significant difference in the functional indexes between the two groups - i.e., these indexes did not depend on whether or not the workers were engaged in athletics, but were determined solely by the conditions pertaining to the work itself, which were the same for both groups.

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USSR

UDC 615.272.2:547.821.4.03:616.24-003.662-092.9

KATSNEL'SON, B. A., BABUSHKINA, L. G., ARONOVA, G. V., STARIKOVA, S. K.,  
POCHASHEV, Ye. N., SHNAYDMAN, I. Ya., POSTOVSKIY, S. N., BORODULINA, S. N.,  
and MALYARENKO, I. S., Sverdlovsk Institute of Industrial Hygiene and  
Occupational Diseases, and Karaganda Institute of Industrial Hygiene and  
Occupational Diseases and Ural Polytechnic Institute, Sverdlovsk

"Experimental Study of the Protective Effect of Polyvinylpyridine-N-Oxide  
Against Silicosis"

Moscow, Gigiyena i Sanitariya, No 10, Oct 1970, pp 20-23

Abstract: A polyvinylpyridine-N-oxide polymer with a molecular weight of 117,500 was prepared, and its activity and effectiveness against silicosis were compared with those of a previously prepared polymer of molecular weight 40,000 and the P-204 polymer (Bayer, West Germany). It was found that the new polymer was more effective than either of the other two polymers against intratracheal dust (crystobalite) introduced in rats for a period of 3-1/2 months. Development of silicosis was sharply reduced, as indicated by the decrease in size and number of cellular-dust lumps and the reduction in proliferating reactions, and sclerotic shifts.  
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KATSNEL'SON, B. A., et al, Gigiyena i Sanitariya, No 10, Oct 1970, pp 20-23

Dust elimination from the lungs and inhibition of the silicotic fibrogenesis process are associated with an increase in the resistance of the alveolar macrophages to the cytopathic effect of silicon. It was found that this process was accompanied by a decrease in the diffusion of a lysosome hydrolytic enzyme (acid phosphatase) into the cytoplasm of macrophages due to the effect of silicon, a fact which is attributed to the anti-silicosis effect of the new polyvinylpyridine-N-oxide polymer.

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Acc. No: **AP0036571**

Ref. Code: UR 0391

PRIMARY SOURCE: Gigiyena, Truda i Professional'nyye  
Zabolevaniya, 1970, Nr 2, pp 21-24  
HYGIENIC, CLINICAL AND EXPERIMENTAL DATA CHARACTERIZING  
MAGNESITE PNEUMOCONIOSIS

Zeleneva, N. I.; Makarov, Yu. V.; Starikova, S. K.;  
Babushkina, L. G.; Yarosh, Z. P.; Ragol'skaya, F. S.

Summary

An examination of workers of a magnesite plant with long service record exposed to highly concentrated dust of raw or roasted (burnt) magnesite containing about 1-3% of total  $\text{SiO}_2$  revealed 13 cases of pneumoconiosis, chiefly among workers exposed to the effect of roasted magnesite. Roentgeno-morphologically magnesite pneumoconiosis is characterized by diffuse pneumofibrosis with isolated micromaculous elements. Clinical manifestations and periods marking development of the disease justify including it in the group of the so-called "benign" pneumoconiosis. Not infrequently it is associated with symptoms of chronic bronchitis and pulmonary emphysema. Experiments on animals demonstrated magnesite dust to have had an insignificant fibrinogenicity, but confirmed its possible accumulation in the lungs, following its long-term inspiration. By comparison with the raw magnesite dust that of the roasted magnesite has somewhat greater pronounced fibrinogenous properties. i

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UDC 621.315.592

KARANOVA, YE. K., DEMAKOV, D. K., STARININ, K. V., STREL'TSOV, and KHAYBULLIN, I. B.

"Study of Single-Crystal SiC Films Obtained by Bombardment of Si Single Crystals With  $O^+$  Ions"

Moscow, Doklady Akademii Nauk SSSR, Vol 200, No 4, 1971, pp 869-870

Abstract: The authors obtained SiC films by bombarding Si single crystals with atomic carbon ions with an energy of 40 kev and a dose of over  $10^{17}$  ions/cm<sup>2</sup> at 600 and 700°. IR absorption spectra were used to identify the ion-implanted films with the SiC compound. Electron-diffraction studies made on the ion-implanted SiC layers by the reflection method showed that a temperature of 700° is necessary to create single-crystal SiC film by the ion bombardment method. To study the structure of the n-SiC-n- and p-Si hetero-junctions created by the ion method, measurements were taken of the photo-emf spectra and I-V characteristics of these junctions. The results indicate a correspondence between the real energy structure of the hetero-junction and the theoretical one. The method of creating heterostructures by ion irradiation makes it possible to create single-crystal layers of compounds of the implanted ion with atoms of the elements making up the sub-

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KARANOVA, YE. K., et al., Doklady Akademii Nauk SSSR, Vol 200, No 4, 1971,  
pp 869-870

strate, even in the case of a great difference between the lattice constants  
of the compound and those of the substrate.

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1/2 023  
UNCLASSIFIED  
TITLE--RADIOISOTOPE INVESTIGATION OF THE LIVER FUNCTION IN THE  
CYCLOPHOSPHAN TREATMENT OF LUNG CANCER -U-  
AUTHOR--(03)--STARINSKIY, V.V., TRAKHTENBERG, A.KH., BATINOV, I.N.  
COUNTRY OF INFO--USSR  
SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 4, PP 32-38  
DATE PUBLISHED--70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--RADIOISOTOPE, MEDICAL NUCLEAR APPLICATION, LIVER FUNCTION  
TEST, LUNG, CANCER, ANTINEOPLASTIC DRUG, ROSE BENGA  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1990/0939  
CIRC ACCESSION NO--AP0109096  
STEP NO--UR/0241/70/015/004/0032/0038  
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0109096

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DATA OF THE FUNCTIONAL STATE OF THE LIVER (BIOCHEMICAL AND THE RESULTS OF RADIOISOTOPE HEPATOGRAPHY WITH RADIOIODINE BENGAL ROSE) WERE STUDIED IN 30 PATIENTS WITH LUNG CANCER WHO WERE TREATED WITH LARGE SINGLE DOSES OF CYCLOPHOSPHAN. THE TEST WITH RADIOIODINE LABELLED BENGAL ROSE ENABLED TO DETECT CHANGES IN THE ABSORPTIVE EXCRETORY FUNCTION OF THE LIVER BEFORE TREATMENT. RADIOISOTOPE HEPATOGRAPHY POINTED TO THE ESSENTIAL TOXIC EFFECT OF CYCLOPHOSPHAN ON THE LIVER. THIS EFFECT DIRECTLY DEPENDED ON THE VALUE OF THE COURSE DOSE OF THE PREPARATION AND UPON THE CLINICAL RESULTS OF TREATMENT. THE DISTURBED INDICES OF THE ABSORPTIVE EXCRETORY FUNCTION OF THE LIVER PRACTICALLY REVERT TO NORMAL 2-3 WEEKS AFTER THE END OF CHEMOTHERAPY. THE TEST WITH RADIOIODINE LABELLED BENGAL ROSE IS A MORE SENSITIVE TEST FOR DETERMINING THE FUNCTIONAL STATE OF THE LIVER IN THE TREATMENT OF LUNG CANCER PATIENTS WITH LARGE SINGLE DOSES OF CYCLOPHOSPHAN THAN THE ROUTINE LABORATORY TECHNIQUES. THIS GIVEN GROUNDS TO RECOMMEND THIS TEST FOR THE ASSESSMENT OF RESERVES OF COMPENSATORY POSSIBILITIES OF THE LIVER. FACILITY: LABORATORIYA IZOTOPNYKH ISSLEDOVANIY, OTD. TORAKAL'NOY ONKOLOGII MOSKOVSKOGO N-I ONKOLOG. INST. IM. P. A. GERTSENA.

UNCLASSIFIED

1/2 036  
UNCLASSIFIED  
TITLE--INVESTIGATION OF CAVITATION EROSION ON MODELS OF RADIAL AXIAL  
HYDRAULIC TURBINES -U-  
AUTHOR--(02)--BUSYREV, A.I., STARITSKIY, V.G.  
PROCESSING DATE--09OCT70  
COUNTRY OF INFO--USSR  
SOURCE--LENINGRAD, ENERGO MASHINOSTROYENIYE, NO 3, 1970, PP 36-38  
DATE PUBLISHED--70  
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--WATER TURBINE, HYDRAULIC MOTOR, CAVITATION, EROSION CORROSION,  
TURBINE BLADE, RESEARCH FACILITY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1993/0881  
STEP NO--UR/0114/70/000/003/0036/0038  
CIRC ACCESSION NO--AP0113728  
UNCLASSIFIED

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CIRC ACCESSION NO--AP0113729  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--09OCT79

ABSTRACT. INCREASING THE OPERATING SPEED OF HYDRAULIC TURBINES IS TIED IN WITH INCREASING SPEEDS OF FLOW PAST THE BLADES OF THE ROTORS. A CONSEQUENCE OF THIS IS AN INCREASE IN THE INTENSITY OF CAVITATION EROSION, A DECREASE OF WHICH IS ATTAINED BY EFFICIENT DESIGNING OF THE BLADE SHAPE, FURTHER LOWERING OF THE LEVEL OF THE MACHINE, AND THE SELECTION OF CAVITATION RESISTANT MATERIALS, THE USE OF WHICH IS ECONOMICALLY JUSTIFIABLE AND TECHNOLOGICALLY PERMISSIBLE IN HYDRAULIC TURBINE CONSTRUCTION. FOR SOLVING PROBLEMS CONNECTED WITH DEFENST AGAINST CAVITATIONAL EROSION, IT IS NECESSARY, EVEN AT THE STAGE OF TECHNICAL PLAN, TO HAVE, ALONG WITH THE CAVITATIONAL CHARACTERISTICS, INFORMATION CONCERNING THE INTENSITY AND THE ZONES OF CAVITATIONAL EROSION ON THE HYDRAULIC TURBINE ROTOR. IN THE HYDRAULIC MACHINE LABORATORY OF THE LENINGRAD POLYTECHNICAL INSTITUTE, RESEARCH ON CAVITATION EROSION WAS CONDUCTED ON MODELS OF RADIAL AXIAL HYDRAULIC TURBINES. THE RESEARCH ANALYSIS AND THE RESEARCH RESULTS ARE PRESENTED IN THE ARTICLE.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--16OCT70

TITLE--TWO MODES FOR DECREASING THE IRREGULARITY OF DOSE FIELDS ALONG A  
RADIATION LOOP SOURCE -U-  
AUTHOR--(02)--STARIZNYY, E.S., BREGER, A.KH.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. 1970, 28(3), 255-6

DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--RADIOCHEMISTRY, RADIATION SOURCE, RADIATION INTENSITY,  
PARTICLE DISTRIBUTION, FLUID FLOW

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1998/0028

CIRC ACCESSION NO--AP0120728

STEP NO--UR/0089/70/028/003/0255/0256

UNCLASSIFIED

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CIRC ACCESSION NO--AP0120728

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-O-

ABSTRACT. THE DOSE FIELDS IN RADIATION CHEM. EQUIPMENT MAY BE MADE MORE UNIFORM BY 2 METHODS: (A) BY THE USE OF COUNTERCURRENT FLOW OF THE RADIATION SOURCE; (B) BY A GRADUAL DECREASE IN THE FLOW RATE OF THE RADIATION SOURCE ALONG THE IRRADN. CHANNELS. A COMBINATION OF THE 2 METHODS MAY ALSO BE USED.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--PRINCIPLES OF PRODUCTION AND CONTROL OF MEASLES VACCINE IN DOG  
KIDNEY CELL CULTURES -U-  
AUTHOR--STARKE, G., KHLINAK, P.  
COUNTRY OF INFO--USSR  
SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 1, PP 73-78  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--TISSUE CULTURE, MEASLES, VIRAL VACCINE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1987/0062 STEP NO--UR/0402/70/000/001/0073/0079  
CIRC ACCESSION NO--AP0103742  
UNCLASSIFIED



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CIRC ACCESSION NO--AP0103742 UNCLASSIFIED  
ABSTRACT/EXTRACT--(U) GP-0- PROCESSING DATE--11SEP70  
ABSTRACT. CRITICISM OF DIFFERENT SUBSTRATES  
FOR VIRUS GROWTH PROMPTED APPLICATION OF PRIMARY CULTURES OF DOG KIDNEY  
CELLS FOR PRODUCTION OF LIVE MEASLES VACCINE IN GDR. THE PAPER  
DESCRIBES DEVELOPMENT AND CONTROL OF CELL DILUTIONS AS A PREREQUISITE  
FOR PREPARATION OF PRIMARY CELL CULTURES FROM DOG KIDNEYS AS THE  
SUBSTRATE FOR VIRUS GROWTH IN PRODUCTION OF THE VACCINE. THE PRINCIPLE  
OF VACCINE CONTROL IS DEMONSTRATED ON THE EXAMPLE OF LIVE MEASLES  
VACCINE.

UNCLASSIFIED

USSR

UDC 669.295.046.43

STARSHENKO, V. I. and GALILGKIY, N. V.

"Thermal Analysis of the Titanium Tetrachloride and Silicon Tetrachloride Systems With Hexachlorodisiloxane and Octachlorotrisiloxane"

Sb. tr. Vses. n.-i. i proyekt. in-t titana, [Collected works of All-Union Scientific-Research and Planning Institute for Titanium], 6, 1970, 37-41, (Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract No.1 G178 by the authors).

Translation: A low-temperature thermal analysis installation is used to study the binary fusibility diagrams of the system  $TiCl_4-Si_2OCl_6$ ;  $SiCl_4-Si_2OCl_6$ ;  $TiCl_4-Si_3O_2Cl_8$ , and  $SiCl_4-Si_3O_2Cl_8$ . The eutectic point in the system  $TiCl_4-Si_2OCl_6$  at  $-47.5^\circ$  and a content of 50.5% (molar)  $Si_2OCl_6$ ; in the system  $SiCl_4-Si_2OCl_6$  at 9.7% (molar)  $Si_2OCl_6$  ( $-77.5^\circ$ ). On the fusibility diagram of the  $TiCl_4-Si_3O_2Cl_8$  system, the eutectic point is located at a content of 59.5% (molar)  $Si_3O_2Cl_8$  and a temperature of

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UDC 669.295.046.43

USSR

STARKHENKO. V. I., and GALILGKIY, N. V.

Sb. tr. Vses. n.-i. i proyekt. in-t titana, [Collected works of All-Union Scientific-Research and Planning Institute for Titanium], 6, 1970, 37-41, Translated from Referativny Zhurnal-Metallurgiya, No. 1, 1970, Abstract No. 1G178 by the authors).

- 59.5°. At - 105.5°, a compound is formed in the solid state with molar relationship of the initial components 1:1. In the system  $\text{SiCl}_4\text{-Si}_3\text{O}_2\text{Cl}_8$ , there is a eutectic point at - 83.9° (34.6% (mol)  $\text{Si}_3\text{O}_2\text{Cl}_8$ ), a monotectic at - 63.9°, and a solid compound of  $\text{SiCl}_4\text{-Si}_3\text{O}_2\text{Cl}_8$  at - 115.0°. 3 figures; 1 table; 7 biblio.refs.

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USSR

UDC 632.95

GVOZDEVA, I. V., LURIK, B. B., STARKOV, A. N., KAMENNOV, N. A., POGODINA, L. N., and SUKHOVA, M. N.

"Search for Synergists of Pyrethrins in the Methylene Dioxy Phenyl Series"

Tr. VNII dezinfektsii i steriliz. (Works of the All-Union Scientific Research Institute of Disinfection and Sterilization), 1971, vyp. 21, t. 2, pp 101-106 (from RZh-Khimiya, No 18, Sep 72, Abstract No 18N431)

Translation: For purposes of studying synergistic activity, a series of piperonylic acid esters and amides, and piperonal acetals, were synthesized. The synergistic activity of the synthesized compounds was tested in a mixture with pyrethrins in a 10:1 ratio by the topical method. In tests on houseflies, the greatest synergistic activity was shown by butyl, nonyl and cyclohexyl esters and N,N-dipropyl amide. N,N-disubstituted amides are more active than N-substituted amides. Among the amides synthesized on the basis of heterocyclic amines, morpholide showed the greatest activity. The most toxic for red cockroaches were mixtures of pyrethrins with N-isopropyl amide and piperidide. Among the acetals, the most active compounds for houseflies were ethyl carbitolic and butyl carbitolic acetals of piperonal, and butyl and heptyl acetals. The acetals are weak synergists for red cockroaches. An investigation was made of the synergistic activity of the synthesized compounds on strains of houseflies highly resistant to DDT. T. A. Belyayeva.

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